



TUG TRAINING & CONSULTANCY



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Skilled and effective tug handling
translates into financial and safety
benefits



AN INTEGRATED APPROACH TO TUG EXPERTISE

Safe and efficient operation of tugs is of vital relevance to the entire maritime industry. The quality of towage performance impacts everything from smooth port operations and damage-free manoeuvring of vessels to safe towage operations at floating LNG terminals and large offshore constructions.

Skilled and effective tug handling thereby translates into financial and safety benefits, not just for everyone who owns or operates tugs, but also for the shipping companies, port authorities, marine contractors, terminal operators, insurance companies and engineering agencies they serve.



Well-trained people

Quality training of Tug Masters is therefore a matter of interest to all. In addition to risk of accidents being greatly reduced, more efficient manoeuvring can open the door to higher throughput and increased business. For tug operators themselves, savings in fuel and maintenance costs are an obvious plus.

While Tug Masters are pivotal in the tug operation process, achieving optimal results also depends on the abilities of others who interact with the tugs. If pilots and vessel masters are also trained to cooperate well with tugs, towage operations can be carried out far more efficiently. For example, a captain navigating a large vessel through a tight waterway will benefit from understanding what a tug can do and what its limitations are, so he/she can collaborate more effectively with the tug master to ensure a swift and damage-free passage.

Well-designed ports

Port and terminal design and procedures are also major factors which influence safety and efficiency of tug-assisted manoeuvres. Specifying these to align with tug operation capabilities can considerably increase throughput rate.

Consulting with tug operation experts during the design phase of a terminal or port can therefore be an immensely worthwhile investment. Such experts can advise on how infrastructure can be optimised to significantly shorten assisting time and avoid dangerous manoeuvres, as well as matching the port with the most appropriate types of tugs. Existing facilities also have opportunities to make vast improvements by reviewing procedures with tug operation experts. The efficiencies revealed through consultation often result in lower CAPEX for port design and building and OPEX when the port is in use.





Shared awareness

Tug assisted manoeuvres are delicate operations which are impacted by every design feature, object presence, environmental condition and movement within the vicinity. Tug Training & Consultancy (TTC) believes the safety and efficiency of towage operations can be vastly improved if vessel operators and facility operators have better appreciation of each other's viewpoints and challenges.

Ideally, all vessel masters should understand how each other's vessels behave upon interaction, with every member of the team involved in manoeuvring (pilots, vessel masters, tug captains, facility managers, etc.) fully understanding the consequences of their actions on others operating in the

Increasing awareness enables better coordination of movement.

same space. At the same time, all authorities, owners and operators should use knowledge of the relevant dynamics to optimise nautical infrastructure and procedures.

Increasing awareness in this way enables better coordination of movement, which effectively reduces risk of damage to people, environment, vessels, cargo and constructions.

RAISING STANDARDS IN TUG OPERATIONS

Tug Masters are required by law to have a STCW certificate of competence. However, this certificate is generic, based only on the tonnage and sailing area of the vessel rather than its function, type, propulsion system, engine power, capabilities and limitations. At present there is no certification for the very specific skills employed in the Tug Master role.

This means the currently accepted level of Tug Master competence is often limited to knowing pre-formulated 'tricks of the trade', rather than fully understanding the physics and reasoning behind these procedures. Tugs and the vessels and constructions around them are thereby exposed to unnecessary risk when Tug Masters have not been taught how to calculate their own way through unexpected circumstances.

TTC believes that tug training should impart complete understanding of the physics behind how a vessel behaves. While commonly offered training courses typically focus only on teaching the aforementioned 'tricks' – a pre-defined set of consecutive actions for specific circumstances – TTC is a strong advocate of looking deeply into the physical aspects that play a role in tug driving.

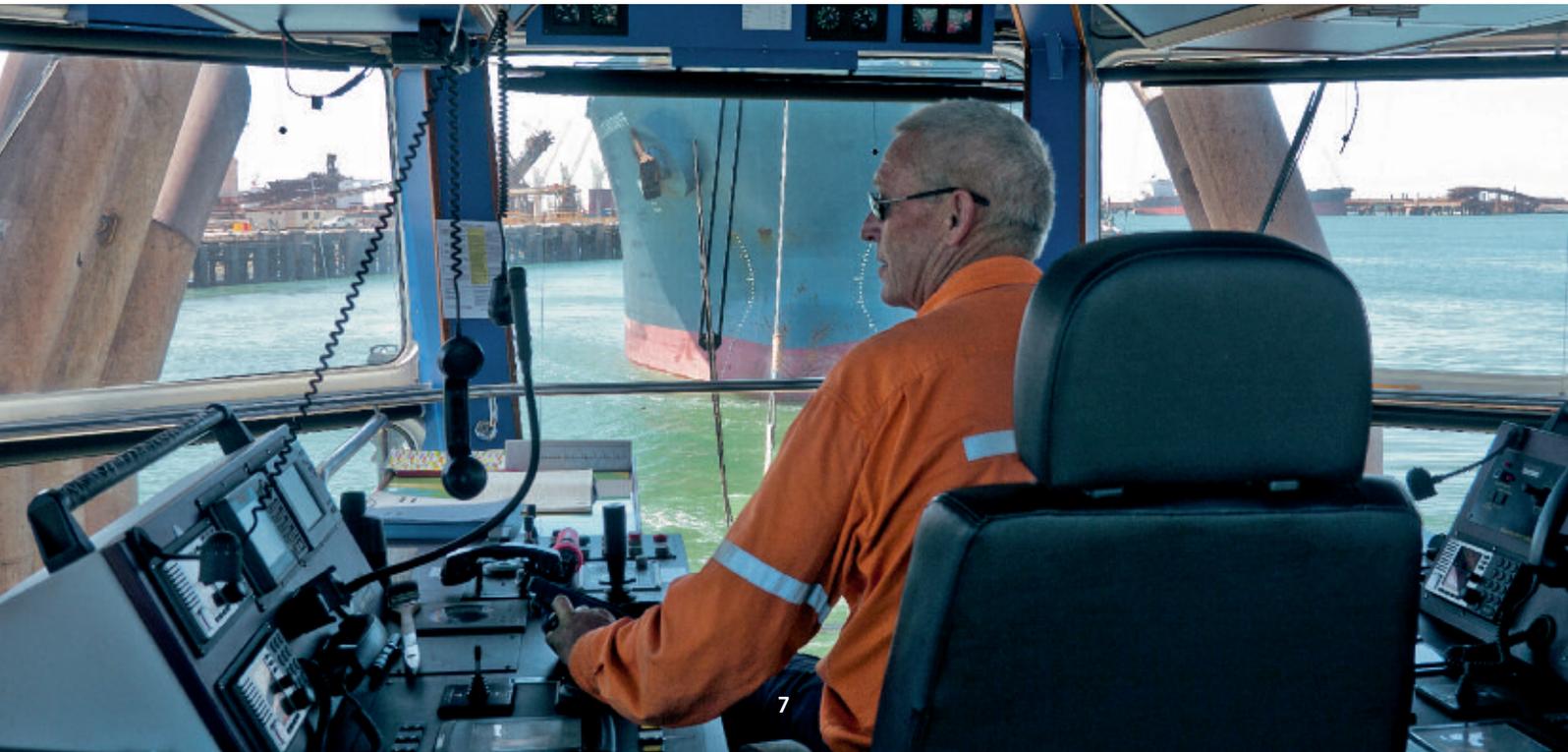


Operating the vessel safely becomes second nature, which results in a greatly enhanced ability to deal with unexpected situations.

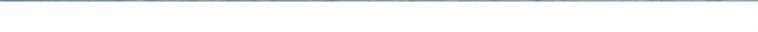


Trainees need to be taught to think for themselves about the best way to handle every situation by considering the forces present and assessing the consequences of possible actions. Thus, a real instinct for controlling the vessel and its influence on other objects is developed. Operating the vessel safely thereby becomes second nature, which results in a greatly enhanced ability to deal with unexpected situations.

TTC is therefore working with authorities and other training institutes to develop a new qualification which requires Tug Masters to demonstrate full comprehension of every aspect of the job. This new Tug Endorsement will comprise everything from having a firm grasp on why a vessel behaves as it does, in all circumstances, to appreciating how their actions interact with what others are doing around them. Adoption of this qualification as a requirement will greatly improve safety and efficiency, with less risk to people, environment, vessels and property.



Safe and efficient towage operations translate into cost savings and increased uptime. Training tug masters to improve their skills and consulting with towage experts have proven to be a worthwhile investment.







THE BENEFITS OF CONSULTING WITH TOWAGE EXPERTS

In the maritime industry, mitigating risks and improving services is the key to a more secure future. While higher standards in tug training go a long way towards increasing safety and productivity, there is also a great deal to be gained from better sharing of knowledge and expertise among every industry operative. Every project which will entail use of tugs

at some point can benefit greatly from consulting with tug experts at the earliest stages of planning. Getting the right advice on infrastructure when designing a port, or procedures for complex transportations of large constructions, can make a considerable difference in preventing miscalculations and expensive adjustments further down the line.

Port infrastructure

Ports will always benefit from having infrastructure which has been engineered with consideration for the most efficient berthing and unberthing manoeuvres. As the size of ships calling at ports continues to increase, the need for tug assistance is growing accordingly. Detailed awareness of tug requirements is therefore an essential aspect which needs to be integrated into port design.

A port which doesn't offer sufficient manoeuvring space for ships to sail through the channel on their own poses a risk of grounding. In a worst case scenario, a grounded ship could block the entrance to the port for several hours causing downtime and massive financial losses. Such situations can be avoided by engaging experienced consultants, whose advice on infrastructure can both prevent occurrence of unwanted situations and speed up operations. Pre-testing and simulating operations with various tug types can provide essential

Simulating operations can provide essential evidence for infrastructure design and the choice of tugs.

evidence for guiding infrastructure design and the choice of tugs to use in the various possible scenarios.

Mitigating risks and optimising efficiency are key to safer, smoother operations and enhanced reputation. While the design phase of a new extension or waterway is the ideal time for implementing expert advice, port authorities and engineers can also capitalise on opportunities to improve existing facilities' infrastructure and procedures. Analysis of





the current situation by nautical and towage experts can be a profitable investment at any time.

In addition to infrastructure design, the choice of tugs present at a port is a majorly important consideration. Different types of tugs are compatible with different types of ships, environmental conditions, port layouts and local port uses. Determining the necessary tug capacity (type, size and quantity) requires more than just a simple calculation. Consulting with tug experts is the best way to ensure optimised efficiency and throughput while avoiding unnecessary investments and operational costs, and even unnecessary accidents.

Transportation

Transportation of large objects is another area where nautical advice can significantly reduce risk of damage and financial loss. Owners or insurers of precious constructions which are transported on barges or other carriers can greatly benefit from

having the entire process assessed and simulated in advance by experts, so difficult manoeuvres in every eventual circumstance can be tested and practiced. Such simulations provide valuable insights which enable the operator to adjust plans or even opt for a different vessel if necessary. They also provide waterway owners with thorough understanding of the dangers associated with the specific transport.

Floating terminals

Floating terminals at locations which often suffer from rough weather are susceptible to downtime every time conditions hamper towage assistance. Turning to a towage consultancy to establish the right procedures and ensure that all involved in the operation are suitably trained can avoid this, thereby vastly improving uptime and profitability. Having access to expert guidance, together with a team of pilots and tug captains with Weather Outage Prevention Training can keep the terminal operational through adverse conditions.

TTC TRAINING METHOD

Tug Training & Consultancy (TTC) promotes safe and efficient tug operations by providing integrated education to all. Our training courses and consultancy services are all based around awareness and understanding of the complete picture. By consistently educating and training every link in the chain, TTC brings greater safety and efficiency to tug operations all over the world.

Because TTC's training courses impart such a deep level of knowledge and understanding, ensuring this learning really sticks is just as important as what is being taught and trained. TTC uses a training method based on Bloom's taxonomy, a structured technique which requires students to repeatedly demonstrate improved skills and full understanding of previous lessons and exercises. This ensures all the information and know-how to apply it becomes deeply embedded in the mind. Learning is thorough and genuine.

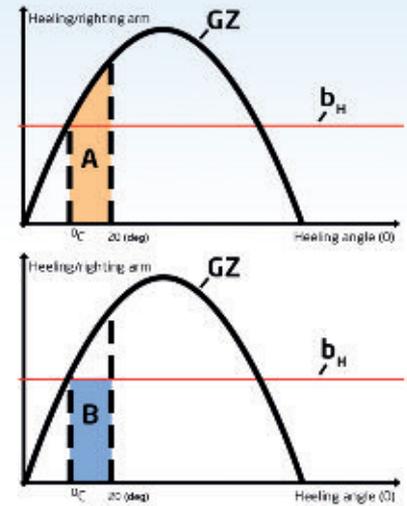
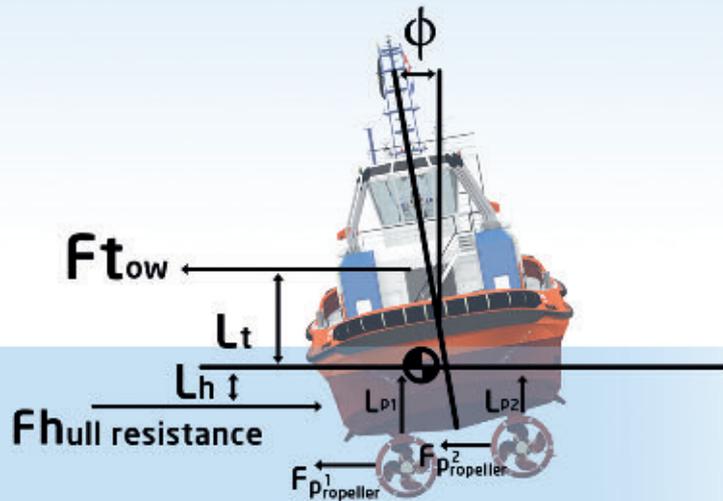
Accordingly, all those who complete the course will be competent to work in full harmony with their vessel, rather than having to rely on pre-determined 'tricks' or procedures from a user manual. This results in a far greater level of competency and efficiency, which significantly improves safety and reduces stress.

TTC's training technique and simulation practice is implemented with a positive coaching approach which enables students to overcome any individual difficulties. This results in all trainees emerging with genuine ability and a high degree of confidence.

Learning by doing is also key. TTC complements classroom sessions with use of state-of-the-art simulators, so a realistic environment can be provided to safely practice every kind of manoeuvre, in every eventual situation. Trainees become properly familiarised with the feeling of operating the vessel as they put theory into practice. Linking of multiple simulators introduces a fully interactive element which challenges competency in every circumstance and from every member of the team involved in ship manoeuvring.

Artist impression ART 10-15 TTC Training Tug RT Borkum





For the finishing touch, TTC has a real training tug available on which trainees can put learning into practice. We are the only training institute to offer this first-hand experience. Our training tug is a small-sized Rotortug® with a length of 15 meters and a 10-tonne bollard pull, which can be used for real towage operations as well as training.

With this combination of a special in-depth training method, taught by experienced Tug Masters, in a simulator and on a real-life tug, TTC offers a unique training that is guaranteed to improve any Tug Master's skills.

Qualified instructors with practical experience

Any learning process is far more effective when you have a good instructor. TTC maintains a high standard when it comes to the quality of teaching staff, only entrusting those who have both worked extensively as Tug Masters themselves and have a natural aptitude for training others.

There's no substitute for practical on-the-job experience when it comes to passing on knowledge. Only those who have

actually experienced the role can realistically prepare others for what's to come. Because each TTC trainer has worked on every type of tug, they are uniquely able to impart first-hand knowledge of the handling and comparative attributes of each. Participants can increase their personal value by learning how to operate all the various tug types and make the best tug choice for different situations.

A mutual understanding between student and instructor is essential for effective learning. Anybody can issue instructions, but it takes a good teacher to really connect with students and get them through any aspects they struggle with. Therefore, All TTC trainers have successfully completed a train-the-trainer course which has been developed in-house. This course incorporates elements from the recognised STCW training standard, as determined by the IMO, complemented with other aspects which TTC knows from its own experience are relevant and beneficial.

By providing the optimal blend of hands-on experience, aptitude for teaching and TTC train-the-trainer expertise, TTC trainers facilitate optimal, comprehensive learning.

TTC CONSULTANCY

Consultancy with hands-on experience

TTC's extensive expertise and operational experience is the basis for a comprehensive consultancy service to everybody who needs advice and assistance on infrastructure and operations where tugs are present. Theoretical knowledge is complemented with many years of field experience and use of state-of-the-art software and simulators to calculate and simulate every variable. The result is accurate and practical advice that improves operational safety and efficiency. TTC also provides highly qualified Tug and Tow Masters to assist with the execution of any project.

TTC's field of expertise includes (but is not limited to):

- Advice on layout for (new) ports or terminals
- Simulation of port layouts and advising on the most appropriate type and quantity of tugs
- Simulation of various scenarios in tug boat configuration
- Nautical and QHSE support to the maritime industry and tug operators
- Towage consultancy and provision of specially trained teams for special transport projects
- Simulation of special transport projects
- Towage consultancy for LNG terminals

SIGTTO Compliant

TTC acts in compliance with the criteria for best practices and acceptable standards set by the SIGTTO (Society of International Gas Tanker & Terminal Operators).

TTC has it covered

Whatever the need for tug-related expertise, TTC has it covered, all over the world. By sharing the highest standards of knowledge with all who can use it, we aim to make tug manoeuvring a safer, more reliable and more profitable operation for all.



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